What is claimed is:

1.   A method for quantifying the weight percent methane in real time in a wellbore

environment, comprising:

obtaining a fluid downhole;

measuring a first optical density for the fluid at a first wavelength region

associated with a methane peak;

measuring a second optical density for the fluid at a second wavelength region

associated with the methane peak; and

determining weight percent methane for the fluid sample from the first and second

measured optical densities.

2.   The method of claim 1, wherein the first wavelength region has a center

wavelength of 1670 nanometers; and

the second wavelength has a center wavelength of 1682 nanometers.

3.   The method of claim 1, further comprising:

correlating weight percent methane with optical absorbance at the first and second

wavelengths.

4.   The method of claim 3, further comprising:

correlating pressure.

1 5. The method of claim 3, further comprising:

2   correlating temperature.

1 6. The method of claim 1 further comprising:

2   determining a gas oil ratio for the sample based on the weight percent methane.

1 7. The method of claim 1, further comprising:

2   monitoring sample cleanup based on a change in weight percent methane.

1 8. The method of claim 3, further comprising:

2   correlating based on synthetic mixtures of methane and dead crude oils.

1 9. The method of claim 1, further comprising:

2   filtering an optical density measurement with a 11 nm full width half maximum

3   filter.

1 10. The method of claim 1, wherein the first wavelength region has a center

2   wavelength of 1670 nanometers and the second wavelength has a center

3   wavelength of 1682 nanometers;

4   correlating weight percent methane, pressure and temperature with optical

5   absorbance at the first and second wavelength regions; and

6   determining a gas oil ratio based on the weight percent methane.

1 11. An apparatus for quantifying the weight percent methane in real time in a

2 wellbore environment, comprising:

3 a tool for obtaining a fluid downhole;

4 a spectrometer for measuring a first optical density for the fluid at a first

5 wavelength region associated with a methane peak and measuring a second

6 optical density for the fluid at a second wavelength region associated with the

7 methane peak; and

8 a processor function for determining weight percent methane for the fluid sample

9 from the first and second measured optical densities.

1 12. The apparatus of claim 11, wherein the first wavelength region has a center

2 wavelength of 1670 nanometers; and

3 the second wavelength has a center wavelength of 1682 nanometers.

1 13. The apparatus of claim 11, further comprising:

2 a processor function for correlating weight percent methane with optical

3 absorbance at the first and second wavelengths.

1 14. The apparatus of claim 13, the processor function further comprising a function

2 for correlating pressure.

1 15. The method of claim 3, the processor function further comprising a function for

2 correlating temperature.

1   16.   The apparatus of claim 11 further comprising:

2   a processor function for determining a gas oil ratio for the sample based on the

3   weight percent methane.

1   17.   The apparatus of claim 11, further comprising:

2   a processor function for monitoring sample cleanup based on a change in weight

3   percent methane.

1   18.   The apparatus of claim 13, the processor function further comprising a function

2   for correlating based on synthetic mixtures of methane and dead crude oils.

1   19.   The method of claim 11, further comprising:

2   a filter for filtering an optical density measurement with a 11 nm full width half

3   maximum filter.

1   20.   The apparatus of claim 11, wherein the first wavelength region has a center

2   wavelength of 1670 nanometers and the second wavelength has a center

3   wavelength of 1682 nanometers, the processor function further comprising a

4   function for correlating weight percent methane, pressure and temperature with

5   optical absorbance at the first and second wavelength regions and a function for

6   determining a gas oil ratio based on the weight percent methane.

1   21.   A computer readable medium containing executable instructions that when

2   executed by a computer perform a method for quantifying the weight percent

3   methane in real time in a wellbore environment, comprising:

4   obtaining a fluid downhole;

5   measuring a first optical density for the fluid at a first wavelength region

6   associated with a methane peak;

7   measuring a second optical density for the fluid at a second wavelength region

8   associated with the methane peak; and

9   determining weight percent methane for the fluid sample from the first and second

10   measured optical densities.

1   22.   The medium of claim 21, wherein the first wavelength region has a center

2   wavelength of 1670 nanometers; and

3   the second wavelength has a center wavelength of 1682 nanometers.

1   23.   The medium of claim 21, further comprising:

2   correlating weight percent methane with optical absorbance at the first and second

3   wavelengths.

1   24.   The medium of claim 23, further comprising:

2   correlating pressure.

1   25.   The medium of claim 23, further comprising:

2   correlating temperature.

1   26.   The medium of claim 21 further comprising:

2   determining a gas oil ratio for the sample based on the weight percent methane.

1   27.   The medium of claim 21, further comprising:

2   monitoring sample cleanup based on a change in weight percent methane.

1   28.   The medium of claim 23, further comprising:

2   correlating based on synthetic mixtures of methane and dead crude oils.

1   29.   The medium of claim 21, further comprising:

2   filtering an optical density measurement with a 11 nm full width half maximum

3   filter.

1   30.   The medium of claim 21, wherein the first wavelength region has a center

2   wavelength of 1670 nanometers and the second wavelength has a center

3   wavelength of 1682 nanometers;

4   correlating weight percent methane, pressure and temperature with optical

5   absorbance at the first and second wavelength regions; and

6   determining a gas oil ratio based on the weight percent methane.